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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,990	03/24/2004	Samson Huang	42P150591D	6775
59796 7590 08/07/2009 INTEL CORPORATION c/o CPA Global P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER XIAO, KE	
			ART UNIT 2629	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/808,990

Applicant(s)

HUANG ET AL.

Examiner

Ke Xiao

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (US 7,088,322) in view of Yamazaki (US 7,053,973).

Regarding **Claim 15**, Koyama teaches a liquid crystal on silicon imaging device (Koyama, Fig. 20), comprising:

a cover glass (Koyama, Fig. 10B element 1009);

a silicon backplane physically connected to the cover glass in a connection area, the connection area defined by a generally rectangular adhesive strip (Koyama, Fig. 10B Col. 5 lines 20-35); and

a liquid crystal sealed between the cover glass and the silicon backplane by the adhesive strip (Koyama, Fig. 10B element 1010 and 1008);

wherein the silicon backplane comprises:

a frame buffer configured to store pixel data (Koyama, Fig. 20 element 2009);

a pixel array located completely within the connection area (Koyama, Figs. 10 and 20 elements 1002 and 2007);

an interface control block connected between the frame buffer and the pixel array, the interface control block being adapted to determined pulse amplitude modulation waveforms for the pixel array in accordance with the pixel data stored in the frame buffer (Koyama, Fig. 20 element 2005 and 2006);

an external interface block data, configured to provide external interface to the device, including receiving pixel data and transferring the received pixel data into the frame buffer (Koyama, Fig. 20 element 2008); and

a control block data, connected to the external interface block, the frame buffer, and the interface control block, the control circuit being adapted to provide control signals to operate the device (Koyama, Fig. 20 element 2002);

wherein at least a portion of the frame buffer block includes memory cells co-located with pixel elements of the pixel array (Koyama, Fig. 20 element 2009).

Koyama fails to teach that the frame buffer, external interface block, and control block are all located at least partially under the adhesive strip. Yamazaki teaches that use of the sealing agent over the entire area of the display device except the pixel portion (Yamazaki, Fig. 1 element 105).

It would have been obvious to use the sealing method of Yamazaki in the device of Koyama in order to provide extra protection to the circuits located integral to the semiconductor display device.

Koyama in view of Yamazaki also fails to teach determining pulse width modulation waveforms but instead teaches pulse amplitude modulation using varied voltages. The examiner takes official notice that pulse width modulation is a well known

method of driving a liquid crystal display as opposed to or even in combination with pulse amplitude modulation. It would have been obvious to one of ordinary skill in the art at the time of the invention to add pulse width modulation to the display device of Koyama in view of Yamazaki in order to provide a wider range of gray scale driving.

Regarding **Claim 17**, Koyama further teaches that the frame buffer includes a front buffer and a back buffer (Koyama, Fig. 20 elements 2003 and 2004).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama (US 7,088,322) in view of Yamazaki (US 7,053,973) as applied to Claims 15-17 above, and further in view of Negishi (US 5,907,314).

Regarding **Claim 19**, Koyama in view of Yamazaki fails to teach dividing up the display components as claimed. Negishi teaches two independent display systems can be put on a single substrate (Negishi, Figs. 10 and 11). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicated the display system of Koyama in view of Yamazaki as taught by Negishi in order to provide independent control to a top half and a bottom half of the display.

Response to Arguments

Applicant's arguments filed November 5th 2008 have been fully considered but they are not persuasive.

The applicant argues that Koyama fails to teach that the memory cells are "co-located" with pixel elements of the pixel array. The examiner respectfully disagrees. The applicant points out a particularly narrow interpretation of "co-located", whereas the examiner's interpretation of co-located is encompassing of the fact that the memory cells as well as the pixel elements are located on the same substrate which satisfies the claimed limitations. The rejection is maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571)272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ke Xiao/
Examiner, Art Unit 2629